

**From:** [Sivak, Michael](#)  
**To:** [Mishkin, Katherine](#)  
**Subject:** RE: Rolling Knolls - Draft Response to QAPP and Data Gap SAP Addendums  
**Date:** Friday, May 29, 2015 11:36:00 AM

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Great! Thanks for the feedback!

Michael Sivak  
212.637.4310

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**From:** Mishkin, Katherine  
**Sent:** Friday, May 29, 2015 11:26 AM  
**To:** Sivak, Michael  
**Subject:** RE: Rolling Knolls - Draft Response to QAPP and Data Gap SAP Addendums  
[Oh and Tanya did an awesome job at handling the meeting yesterday.](#)  
Katie

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**From:** Sivak, Michael  
**Sent:** Friday, May 29, 2015 11:20 AM  
**To:** Mishkin, Katherine  
**Subject:** RE: Rolling Knolls - Draft Response to QAPP and Data Gap SAP Addendums  
[Thank you!](#)  
Michael Sivak  
212.637.4310

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**From:** Mishkin, Katherine  
**Sent:** Thursday, May 28, 2015 9:45 AM  
**To:** Sivak, Michael  
**Subject:** FW: Rolling Knolls - Draft Response to QAPP and Data Gap SAP Addendums  
[Just so you have them, here are the NJDEP comments.](#)  
Katie

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**From:** Mitchell, Tanya

**Sent:** Thursday, May 28, 2015 6:12 AM

**To:** Mishkin, Katherine; Clemetson, Michael

**Subject:** FW: Rolling Knolls - Draft Response to QAPP and Data Gap SAP Addendums

Hello All,

Attached below are comments received from NJDEP which may be part of the discussion for today's call. Please review in preparation for the call.

Thanks,

Tanya

From NJDEP:

A. QAPP Comments

1. The QAPP Addendum limits the parameters to be analyzed at each proposed sampling point. Given the level of unpredictability in the distribution of the many contaminants associated with the site, please include all site-related parameters in the proposed delineation sampling. Based on conversations between the EPA Project Manager and the NJDEP Case Manager, it is the NJDEP's understanding that all site-specific parameters have been included in the analytical at each sampling location for each phase of the delineation, to date.
2. Please request revisions to the QAPP to stipulate that soil and sediment samples will be collected in 6 inch increments [as stipulated in the NJPDES Field Sampling Procedures Manual (FSPM)] rather than the 1 foot intervals that are proposed. Although this would have ideally been done throughout the SI and RI process, it should be incorporated into the final stages of the delineation work associated with the site. In consideration of the historic data which included 1 foot sampled intervals, two delineation samples in 6 inch increments should be collected at each location at which delineation is proposed. For example, if the 0-1 foot interval is being delineated, samples should be collected at 0-6 inches and at 6 inches – 12 inches. Additional sampled intervals may be necessary at each proposed boring location based on the contaminated intervals that are being delineated.

B. Data Gaps Sampling and Analysis Plan Comments

1. It is unclear what the intended future use(s) and disposition of the subject properties are, which affects the level of Remedial Investigation of soil and sediment necessary to comply with NJDEP's *Technical Requirements for the Remediation of Contaminated Sites* (N.J.A.C. 7:26E, a.k.a. "the Tech Rules"). Rather than provide a point-by-point analysis of existing and proposed sampling data or locations, respectively, Arcadis is referred to N.J.A.C. 7:26E-4.2(a) 1 to determine the level of remedial investigation sampling required, based upon the future disposition they determine is appropriate for the site and surrounding properties.
2. In years past, comments were provided to USEPA by the NJDEP Case Manager in regard to previous RI proposals. It is noted that those previous comments also referenced N.J.A.C. 7:26E Remedial Investigation (RI) requirements as they pertain to this Site. The currently proposed work falls short of meeting those previously stated requirements. It appears that off-site properties, beyond the Great Swamp National Wildlife Refuge Boundaries, may be impacted by contamination from the landfill ("the Site"). Areas of off-Site contamination must be delineated horizontally and vertically to the strictest applicable NJDEP Soil Remediation Standards. Please note that the Tech Rules specify "for soil contamination associated with a site-related area of concern, delineate the horizontal and vertical extent of all soil contamination in the unsaturated zone which contains contaminants above the impact to ground water soil remediation standard without

regard to the property boundary”.

**\*\*Please clarify that delineation to the appropriate NJ Soil Remediation Standards (SRS) will be incorporated into the design and implementation of the RI sampling activities. Based on the maps and tables presented to date, it is not apparent that the delineation data are being compared to all of the applicable NJ SRS including, but not limited to, the Residential Direct Contact SRS and the Impact to Ground Water (IGW) standards.**

**\*\*In order to properly comment on the proposed final phase of the RI work, it is requested that Arcadis provide the following information in the requested format: A comprehensive data results table which lists all soil results collected to date (including the most recent data gap sampling results) compared to all relevant SRS. At a minimum, the table should include the sample designations, sampled intervals, sample elevations, date of sampling, sampling results; all relevant NJ-SRS against which the data is being compared, etc. This table should be cross-referenced to maps which illustrate the locations of all samples collected, to date, in regard to the site.**

3. NJDEP previously commented that areas of incomplete soil contamination delineation appear to include the southeastern, northwestern, and eastern areas of the landfill, and potentially, areas where figures noted “data not yet received”. Based upon information presented and depending on the future disposition of the Site, vertical (and horizontal) delineation may be incomplete across a large part of the landfill (again, see N.J.A.C. 7:26E-4-2(a) 1).
4. NJDEP previously commented that in addition to Human Health-Based Soil Remediation Standards (SRS), NJDEP has issued Ecological Screening Levels (ESLs) that need to be included in the evaluation of soil, sediment, and surface water (and sediment pore water) sample results. It does not appear that delineation to NJDEP’s Ecological Screening Criteria is a concern addressed in this SAP. It also appears uncertain when that will be addressed. It is assumed that additional delineation from what is proposed here will be required in order to complete the Ecological Assessments associated with the site.
5. NJDEP previously noted that lead and a few select other metals concentrations are elevated in soil and ground water on the western side of the landfill in red-hashed areas on the figures provided, and that delineation appears incomplete in this area and/or this may be a potential hot spot. Depending on the disposition of the Site, Arcadis may also need to evaluate levels of PAHs to ensure compliance with the Tech Rules (e.g., whether the compliance requirement is to impact to ground water, residential, or non-residential remediation standards). This needs to be considered when designing and implementing the RI delineation sampling.
6. Figures 3C and 3D need to be re-labelled as sample results rather than proposed sample locations. Based on the maps provided, it is not clear as to the location of the proposed delineation samples for this phase of the investigation.
7. It is requested that when determining whether delineation is complete, that consideration be given to not only the sampled interval in relation to ground surface, but also to the elevation of the sample in relation to the elevation of the contamination being delineated. It is noted that, due to the topographic variations across the study area, some of the surficial delineation samples appear to be collected at slightly higher elevations than the contaminated interval being delineated. Including the sample elevations (in addition to the sampled interval in relation to ground surface) on comprehensive data tables will enable Arcadis, the EPA and the DEP to effectively evaluate whether delineation of the identified

contamination is truly complete (see comment B. 4, above).

This is especially critical when delineating beyond the landfill boundaries. The mode of migration and deposition of the contamination identified beyond the landfilled areas needs to be considered. If transport of this contamination is assumed to have occurred as suspended material in runoff from the landfilled areas during storm / rainfall events, it would be critical to assess lower elevation areas that would operate as depositional zones. If other modes of deposition (i.e. intentional filling, etc.) are suspected beyond the footprint of the landfill, additional sampling locations at varying elevations, including high spots, would be warranted.

8. A review of the data collected to date indicates a level of unpredictability in both the horizontal and vertical distribution of contaminants across the study area. In consideration of this, it is requested that more than the surficial interval be evaluated at the delineation locations. There are several locations within the landfilled areas that show increasing contaminant concentrations with depth (e.g. ). Since it is not apparent that anything other than surficial delineation samples were collected at the perimeter of the landfill, to date, the full extent of the contamination previously identified across the landfill has not been accomplished, nor will it be accomplished with the proposed delineation work.
9. To enable a more effective review of the monitoring well proposals as well as to put the updated data in context, the following information is requested to be provided:
  - a. Monitoring Well Construction Table. This table should include, but not necessarily be limited to, the following information for all site – related monitoring wells: total depth; well diameter; screened interval; top of casing elevation; ground surface elevation; etc. Please also include the construction specifications of any temporary well point that was advanced at the site.
  - b. The well logs associated with the “x” series of wells (X-1 through X-6) installed at the site.
  - c. Ground Water Summary Data Tables for each monitoring well and temporary well point associated with the site. These tables should include all historic ground water sampling detects up to the most recent sampling event. Ideally this table will also include the hydraulic gauging data associated with each sampling event conducted at the site. If this is not possible, the hydraulic gauging data may be included on a separate table.
  - d. Additional detail regarding the Tentatively Identified Compounds (TICs) identified in ground water at the site, including the identity and concentrations of the TICs identified in ground water during each sampling event.
  - e. Please verify that the sampling protocols required in the NJ DSPM are being followed and that the appropriate documentation will be provided when reporting the data derived from these sampling events.
  - f. Please clarify how it will be determined whether the waste within the landfill is contributing to the elevated dissolved phase concentrations of what are considered to be naturally occurring compounds (e.g. iron, aluminum, and manganese). As stated in previous comments, although these compounds are considered naturally occurring, the concentrations of these metals in ground water are sometimes notably higher within the landfilled area.